

Remarks

The Applicants note with appreciation the withdrawal of the prior §§112, 102 and 103 rejections.

The Applicants note that the provisional obviousness-type double-patenting rejection of Claims 25-36 is maintained. The Applicants again note that the rejection is "provisional" and, accordingly, need not be addressed at this time.

The Applicants have amended Claim 25 to include the subject matter of Claim 34. Claim 25 has also been amended to recite about 40% or less of a residual austenite that must be "present." In other words, Claim 25 should be interpreted such that there is indeed a presence of residual austenite phase, albeit in an amount that is about 40% or less. Claim 34 has accordingly been cancelled. Also, Claims 35 and 36 have been amended to depend from Claim 25 in view of the cancellation of Claim 34. Inasmuch as the above amendments and cancellations do not raise new issues or require further search, the Applicants respectfully request that they be entered into the official file.

Claims 25, 27-29, 31, 34-36 and 48 stand rejected under 35 USC §103 over the new combination of ASM Handbook with Kushida. The Applicants note that the rejection is now moot with respect to cancelled Claim 34. The Applicants nonetheless respectfully submit that even if one skilled in the art were to make the hypothetical combination of ASM Handbook with Kushida, the combination would still result in a steel pipe that is different from the subject matter of Claims 25, 27-29, 31, 35-36 and 48. Reasons are set forth below.

The Applicants have discovered a stainless steel seamless pipe that results from a specific combination of constitutional elements and utilization of particular methodology. The resulting stainless steel has excellent corrosion resistance and resistance to sulfide stress cracking. This is brought about not only by the constitutional elements, but also the methodology which results in a microstructure that includes a residual austenite phase wherein the austenite phase is present but in an amount of about 40% or less, about 10 to about 60% of a ferrite phase and about 25% or more of a martensite phase wherein the martensite phase is the base phase. The specific microstructure allows for the resulting pipe to have an excellent yield strength, excellent workability and excellent toughness - - - all at the same time. This is particularly advantageous for the typical uses for the Applicants' steel pipes.

This unique combination of constitutional elements and microstructure is sharply contrasted to the structures disclosed in Kushida. Kushida discloses two different types of structures. The first microstructure is the metal for the stainless steel used to form the pipe. The other is the seam weld metal which has a different microstructure. For example, the Applicants invite the Examiner's attention to the second paragraph at column 3 beginning at line 12 wherein the microstructure of the stainless steel comprises a full martensite phase with a ferrite phase contained therein. Also, the seam weld metal forms a microstructure comprising a martensite phase as the main constituent with an austenite phase contained therein. Amounts of the various phases are described in the paragraph in column 3 beginning at line 46 wherein the base metal contains 55-90% martensite phase and 10-45% ferrite phase, while the weld metal comprises 70-95% martensite phase and 5-30% austenite phase.

This is completely different from what the Applicants claim. The Applicants claim a seamless steel pipe comprising a microstructure having about 25% or more martensite phase, about 10 to about 60% ferrite phase and an austenite phase that is present, but in an amount that is about 40% or less. In other words, the Applicants' steel pipes simultaneously have all three of an austenite phase, a ferrite phase and a martensite phase. The corresponding microstructure from Kushida only comprises a martensite phase and a ferrite phase. There is no austenite phase in any amount. This is an important difference because the Applicants have discovered that the austenite phase provides the desired toughness sought by the Applicants. Thus, this feature is absent from Kushida. The presence of all three of the phases in the Applicants' claimed steel pipes may be found, for example, in Table 3 under the heading "Microstructure of mother material." It can be see that all three phases are present in the claimed amount. Again, this is sharply contrasted to Kushida which is limited to the martensite phase and ferrite phase in the base metal.

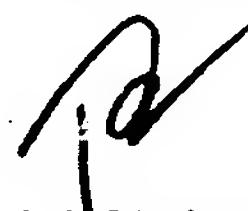
Although Kushida discloses the presence of an austenite phase, the austenite phase is limited to the weld material and is only in combination with the martensite phase. There is no combination in Kushida wherein an austenite phase, a martensite phase and a ferrite phase are present in the steel at the same time. The structures in Kushida are instead quite different.

Assuming arguendo the validity of the position in the rejection that it would be obvious to substitute a seamless pipe for a welded pipe, that substitution would make no difference by applying the teachings from ASM Handbook to Kushida. The result in that case would be a

seamless stainless steel pipe having a martensite and ferrite phase microstructure. Again, that is not what the Applicants claim. The Applicants claim the presence of an austenite phase, a martensite phase and a ferrite phase. Accordingly, even if one skilled in the art were to make the hypothetical combination, that combination would result in a seamless steel pipe having a different structure from what the Applicants claim. The Applicants accordingly respectfully submit that the rejection is inapplicable to Claims 25, 27-29, 31, 35-36 and 48. Withdrawal of the rejection is respectfully requested.

In light of the foregoing, the Applicants respectfully submit that the entire application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,



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